



**How do we fit in the team
photo (and other questions asked
by perennial crop farmers...)**

Jean-Mari Peltier, NGWI President
EPA Ag Advisory Panel, Sacramento, CA
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Representing US grape & grape products research needs...



NGWI's Board Structure

- 6 Regional Representatives
- 7 Species Representatives
- At large Representatives

Economic impact of the US Grape Industry

- America's largest processed specialty crop by value
- 5,000 wineries in each of the 50 states
- 44 states grow grapes
- Health contribution of grapes
- Significant farm gate value
- Taxes -- \$17 Billion annually
 - \$9 billion federal
 - \$8 billion state & national

NGWI's Theme Committees

- ◉ Extension and Outreach
- ◉ Understanding & Improving Quality
- ◉ Production & Processing Efficiency
- ◉ Consumer Insights, Nutrition & Community
- ◉ Sustainability

NGWI Work Undertaken without government assistance...



NGWI Sustainability Projects

Winery Water and Energy Manual

- Manual has been published and distributed to NGWI Board members
- First workshop held in California
- 60 requests for copies of the manual were received in the first two weeks after the availability of the manual was announced
- NY and Washington State have committed \$ to host workshops in their area

NGWI Consumer Insights, Nutrition & Community

- Grape Health Workshop –
- Held on December 2-3, 2008 in San Francisco
- Brought in health researchers with seven areas of emphasis
 - Cardiovascular, cancer, cognitive function/brain health
 - Immune function, diabetes/glycemic response, anti-microbial/anti-adhesion, bioavailability/analytical

NGWI SCRI Grant Applications in 2009

- *“Developing Sustainable Solutions Water Management in Irrigated Vineyards*
- *“Vineyard Mechanization for Enhanced Economic Sustainability*
- *“Development of a Grape Community of Practice for the eXtension System”*
- *Climate Change Planning Grant*

Energy Drivers and Timing

US\$ / ton CO2

EPA's Top Green Power Partners	GREEN POWER KWH	PERCENT	SOURCE
PepsiCo	1,105,045,154	100%	Various
Wells Fargo	550,000,000	42%	Wind
Whole Foods Market	463,128,000	100%	Biomass, Geothermal, Small-hydro, Solar, Wind
Johnson & Johnson	400,702,978	39%	Biomass, Small-hydro, Solar, Wind
Starbucks	185,000,000	20%	Wind
DuPont	180,000,000	4%	Biogas, Wind
HSBC North America	124,544,000	35%	Wind
Cisco Systems	124,105,846	21%	Various
Staples	121,404,000	20%	Biomass, Solar, Wind
IBM	109,704,000	4%	Solar, Wind
Nature Works	89,000,000	89%	Wind
Safeway	87,000,000	2%	Wind
Kohl's Department Stores	80,152,000	8%	Biogas, Biomass

2000

2005

2010

2015

2020

Research needs for vineyards

- Carbon dioxide production and C sequestration
- Nitrous Oxide Production
- Methane Production

Perennial crops may offer more sequestration potential

- ◉ Deeper root depth distribution (more than annual crops)
- ◉ Trunks, cordons and roots – woody structures for sequestering carbon
- ◉ Canes, leaves and pomace can be incorporated into soil

But even here we have more questions...

- ◉ Seasonal environmental variation
- ◉ Variety
- ◉ Rootstock
- ◉ Management
 - Training & trellising
 - Hedging
 - Irrigation
 - Fertilization
 - Cover cropping
 - Vine density & Row Orientation

Root Biomass and Carbon

- Root biomass 140 to 360 g/vine
- Thompson Seedless 1000 g/vine
- Irrigation impacts roots
 - Drip versus furrow
- Ratios of roots to trunk
 - Vary from .33 to 1.2
- Owned-rooted versus various rootstocks?
 - (Data seems in conflict...)

Bottom line: we don't know and can't extrapolate

Non-permanent vine structures

- Stems, canes and leaves
- Huge range of biomass produced and/or removed
- Shredded or chipped
- ***Bottom line: need research on vine tissue decomposition rates***

Vineyard floor management

- Effect of different cover crops
- Range of soil types across 44 states where grapes are produced
- Cultural practices and carbon stored
- Climate and carbon sequestration
- **Bottom line: how much & where?**

Offsets Market Lexicon

Issue 1: **Permanence** -- Will the carbon stay out of the atmosphere?

- Solutions: Assign liability, continuous reporting, temporary credits, renting credits, discounting

Issue 2: **Additionality** – Would the action happen anyway?

- Solutions: Limit entry, document justification, discount credits, accept it (adjust national goals)

Issue 3: **Leakage** – Will the emissions move elsewhere?

- Solutions: Discount credits, document that changes did not occur elsewhere, accept it (adjust national goals)

We could use some help...

- Research on carbon sequestration should focus on above and below ground carbon storage across a range of soils & climates
- Same is true with nitrous oxide production
- Also need to understand carbon & tissue decomposition (can we make biomass handling more cost effective?)
- Technology certification is a good role for government

Thank you for this opportunity!

